



# Faculty of Engineering Research Ethics Committee

Upon completion this application form should be uploaded as an attachment, together with documents referred to in the application, to your online ethics submission. This form should be completed in conjunction with the guidance form.

<b>Questions 1-12</b>					
<b>Contact Information and Study Details</b>					
<b>1.</b>	<b>Title of the research:</b>  Developing an affect enhanced "Turrellian" RGB LED lamp designed to improve mood: towards multimodal affect-sensitive computing and devices.				
<b>2.</b>	<b>Applicant details:</b>  <table border="1"> <tr> <td>Student Name or Principal Investigator: Humphrey Curtis</td></tr> <tr> <td>Job or Course Title (UG or PG): PG MSc Computer Science</td></tr> <tr> <td>Contact number: 07960987012</td></tr> <tr> <td>Email: dr19500@bristol.ac.uk</td></tr> </table>	Student Name or Principal Investigator: Humphrey Curtis	Job or Course Title (UG or PG): PG MSc Computer Science	Contact number: 07960987012	Email: dr19500@bristol.ac.uk
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<b>3.</b>	<b>Details of Supervisor (if applicant is a postgraduate or undergraduate student)</b>  <table border="1"> <tr> <td>Name: Dr Paul O'Dowd</td></tr> <tr> <td>Title: Lecturer Department of Computer Science</td></tr> <tr> <td>Contact number: +44 (0)117 928 9000</td></tr> <tr> <td>Email: paul.odowd@bristol.ac.uk</td></tr> </table>	Name: Dr Paul O'Dowd	Title: Lecturer Department of Computer Science	Contact number: +44 (0)117 928 9000	Email: paul.odowd@bristol.ac.uk
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Title: Lecturer Department of Computer Science					
Contact number: +44 (0)117 928 9000					
Email: paul.odowd@bristol.ac.uk					
<b>4.</b>	<b>Other investigator(s) involved, with job title:</b>  None				
<b>5.</b>	<b>Source of funding:</b>  Self-funded				
<b>6.</b>	<b>Start Date and Project Duration:</b>  <table border="1"> <tr> <td>Start Date: 18<sup>th</sup> July – 10<sup>th</sup> August (cut off)</td></tr> <tr> <td>Duration: 2 weeks – single day of testing and cut off point</td></tr> </table>	Start Date: 18 <sup>th</sup> July – 10 <sup>th</sup> August (cut off)	Duration: 2 weeks – single day of testing and cut off point		
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Duration: 2 weeks – single day of testing and cut off point					
<b>7.</b>	<b>Where will the study take place?</b>  I am working with a corporate partner – my study satisfies their health and safety guidelines, criteria and the staff involved are happy to proceed with participation in the study and consent will be ratified via Skype remotely on the day of testing. The study will take place at participants location of choice – I will fully sanitise the two lamps and send them to each participant to test individually, consequently any data will be collected via anonymised internet questionnaire links.				

8.	<b>Background and aims of the study:</b>
	<p>My two hypotheses centre on qualitative and quantitative feedback from participants. Firstly, I believe that the affective state of a person will be significantly altered by the LED lamp's coloured light changes. Secondly, users will be able to consciously recognise the effect that the lighting manipulation is having on their affective state. Subsequently, the Turrellian LED lamp should be well received via questionnaire data.</p> <p>Therefore, the goal of the study is to develop an IoT device, which is capable of being aware of individuals affective state and thus can offer an enhanced and improved interface, coloured lighting and useful experience for users – to hopefully improve users' mood. Consequently, research conclusions will be primarily drawn on users experience and opinion of the device and interface. Furthermore, participants will be invited to utilise a Phillips Hue smart bulb to ascertain their preferences and invited to fill out a questionnaire concerning this rival lighting device to cross-evaluate with the Turrellian LED lamp.</p> <p>This ethics application covers the final, evaluative stage of the project. In this stage, the prototypical Turrellian LED IoT device will be evaluated from a User Experience (UX) perspective, ascertaining how well it satisfies user requirements and identifying areas for improvement. Questionnaire questions to be answered via email web link hosted on google forms follow the Attrakdif user experience methodology and thus centre on you scoring the device based on word pairs. For example, is the device professional or unprofessional? Another example includes, does the device offer innovation or traditionality?</p>

9.	<p><b>Outline the design of the study and list the procedures to which the participants will be subjected, the anticipated testing time and any treatments administered:</b></p>
	<p>The experimentation will be carried out remotely via Skype. I will fully sanitise both lamps and the equipment and send it to each participant for them to test safely and not in person. At the beginning of the prearranged skype call, there will be an initial explanation of the study and an opportunity to ask questions.</p> <p>At this point, participants will be asked for their verbal consent to proceed with the experiment. Written consent will be obtained via participants signing the emailed consent form document – scanning it or photographing and resending the document via email back to me. Once this has been successful, experimentation will continue. Participants can even sign the consent form virtually by typing their name on the dotted lines of the PDF document.</p> <p>Wearing the physiological sensor (it is like a Fitbit or watch) will take place with myself demonstrating how that can be easily done over Skype. The physiological sensor will track heart rate (pulse) and the other to track skin temperature changes. The sensor is not physically invasive – it is worn like a wristwatch – none of the pulse or heart rate data will be medically reviewed. Participants will then be encouraged to enjoy the lighting rendered by the IoT Turrellian LED for a period of time.</p> <p>Upon completion of the interaction exercise, participants will be asked to complete an online multiple-choice questionnaire about their experience via a website link sent to their email. Both questionnaires will be issued, and no personal information will be recorded. After completing questionnaire, participants will briefly use a rival Phillips Hue smart bulb for a short period, fill out a second anonymised questionnaire and will have the opportunity to briefly give their comments and opinions.</p> <p>The two questionnaires will enable me to be able to cross-evaluate the Turrellian LED lamp with a commercial rival – participants will be informed of this detail. The boxes the lamp are delivered to each participant in, will have an enclosed return label – enabling the lamp via courier to be sent back to myself.</p> <p><b>Time commitment:</b></p> <p>Start of skype call, task explanation and consent: 10 minutes</p> <p>Bodily sensor demonstration: 5 minutes</p> <p>LED interactive exercise: 10 minutes</p> <p>First questionnaire filling: 10 minutes</p> <p>Informal use of Phillips Hue: 10 minutes</p> <p>Second questionnaire filling: 10 minutes</p> <p>End of skype call, brief discussion of returning lamps: 10 minutes</p> <p><u>Total: 70 minutes maximum</u></p>
10.	<p><b>Does your study involve the collection or use of any human tissue or exudate? If yes, what is the material to be collected?.</b></p>
	<p>No</p>

If yes, please explain:

**10a.** If you have answered 'yes' to Q10, has confirmation been obtained from your Departmental Human

	<b>Tissue Act Advisor that collection and storage of this material will be undertaken under an appropriate licence?</b>
	n/a
<b>11.</b>	<b>Will the research involve working with animals?</b>
	No
	If yes, please identify how you will address any animal welfare issues and whether you have undertaken ethical review elsewhere (e.g. zoo or national park authorities). Please also see the relevant guidance.
<b>12.</b>	<b>Has this study been subjected to peer review?</b>
	No

	<b>Questions 13-22</b> <b>Recruitment and Informed Consent</b>
<b>13.</b>	<b>Who will be recruited to participate in this study?</b>
	I am working with a corporate partner, which is interested in trialling the device to potentially benefit their staff. The inclusion criteria are very clear: participants must be over the age of 18 and a UK-resident.
<b>14.</b>	<b>Are there any potential participants who will be excluded? If so, what are the exclusion criteria?</b>
	Children (under the age of 18) and individuals who are not UK resident will be excluded. I do not anticipate receiving volunteers who are so unfamiliar with English that they cannot understand the task explanation and answer interview questions. The student additionally has lived abroad and is well practiced in making his English speech understandable to non-native speakers if necessary.
<b>15.</b>	<b>How many participants will be recruited?</b>
	Maximum 10
<b>16.</b>	<b>How will the participants be recruited?</b>
	I am working with only a corporate partner based in London, who have participants happy to trial the devices remotely over Skype. I am fully adhering to the parent company's health and safety guidelines and have their full support to conduct to the trial safely over Skype.
<b>17.</b>	<b>How will informed consent be obtained from all participants or their parents/guardians prior to individuals entering the research study?</b>
	<p>Participants will be sent an information sheet to read in advance of the experimentation via email. A copy of this document is attached. The student will then explain the project and the task to follow in person at the start of the Skype call and give the participants ample chance to ask questions.</p> <p>They will then be asked for their consent to have their physiological data (heart rate and skin temperature) used by the lamp to orientate colour sequences and questionnaire responses fillable via a web link collected to be used as data in the trial. If this consent is granted, the experiment will be started after they have virtually signed a consent form and they will be asked a couple of final questions to ensure their total verbal consent for the task. Even after signing the consent form and emailing it back to me, participants are free to withdraw at any time.</p>
<b>18.</b>	<b>How long will potential participants have to decide whether to give consent?</b>
	Participants have to give consent before experimentation, and they will have as much time as needed to decide if they would like to participate.
<b>19.</b>	<b>Will participants be kept informed of new information that becomes available during the study which may influence their continued participation?</b>
	Yes. This will be conveyed to participants if they choose to leave their contact details with me if any changes happen and I will seek their consent to proceed with using their data.

<b>20.</b>	<b>Will the study involve actively deceiving, or withholding information from, the participants?</b>
	No
	If YES, explain why it is necessary to use deception and state how you will ensure that the participants are provided with sufficient information at the earliest stage, and how you intend to ameliorate possible distress caused by the deception, including a plan for subject debriefing.
<b>21.</b>	<b>Will participants be made aware that they can withdraw from the study at any time without having to give a reason for doing so?</b>
	Yes. This will be conveyed to participants on an information sheet before the interview, and also verbally before the start of the interview when seeking their consent to proceed.
<b>22.</b>	<b>Describe potential risks (physical, psychological, legal, social) arising from these procedures:</b>
	<p>The main potential risk to participants is associated with the present global Coronavirus pandemic. Therefore, both lamps will be intensively cleaned and sanitized before being sent to the participant.</p> <p>The preference to conduct experimentation over skype call should satisfy the University of Bristol's pandemic guidelines. Upon the lamp being returned to myself, I will thoroughly sanitize the lamp so as to avoid being contaminated from participants and yet again sanitize the lamp thoroughly before sending it to another participant.</p> <p>The lamp automatically monitoring participants physiological data (heart rate and skin temperature) – should not be too difficult or taxing for participants. The sensor will merely document participants affective state based off heart rate and skin temperature and subsequently orient the IoT LED's coloured lighting.</p> <p>With all these things considered, the risk of participants coming to physical harm is very low, and the legal/reputational risk to the study conductor or the University of Bristol is even lower.</p>
<b>22b.</b>	<b>Is there likely to be any risk to the investigator during this study?</b>
	No
	If yes, please explain how this will be minimised
<b>22c.</b>	<b>Is there likely to be any risk eg. legal, adverse publicity, to the UoB?</b>
	No



	If yes, please explain
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	<b>Questions 23-32</b> <b>Outcomes and Data Protection</b>
<b>23.</b>	<b>How will participants be informed about the outcome of the study?</b>
	Participants and my corporate partner will be contacted via email soon after the thesis submission date to inform them what the core findings of the thesis were. In the event that the thesis is ultimately published in any form, the student will additionally contact the study participants to make them aware of this. Furthermore, at the end of experimentation participants will be provided with my email to provide any further feedback if they develop any thoughts upon later reflection.
<b>24.</b>	<b>How will the results of the study be disseminated and reported?</b>
	<p>All data will be handled confidentially and anonymously. The data collected from this study will be used in an MSc thesis for submission to the University of Bristol. It potentially may also be used in articles for publication in journals and conference proceedings. Results from the research will be presented in accordance with rules for anonymity such that the results cannot be traced to individual participants.</p> <p>No personally identifying information will be recorded on the questionnaire or with regards to data collected. Any personal information recorded as part of the consent process or through the experimentation will be kept strictly confidential. Any final write-ups of the data gathered from the questionnaire will not include any information that can be linked directly to you. Any intermediate CSV files containing data will be stored so that your name is not associated with it - using a randomly generated number (eg. Participant 21987).</p> <p>This study fully adheres to guidelines concerning University of Bristol GDPR guidelines for 2020: <a href="http://www.bristol.ac.uk/secretary/data-protection/gdpr/">http://www.bristol.ac.uk/secretary/data-protection/gdpr/</a></p> <p>All anonymised data will be stored locally on my laptop with absolutely none stored in the cloud thus mitigating any data breaches. The data will equally be stored in anonymised CSV files.</p>
<b>25.</b>	<b>Is any payment other than reimbursement of expenses to be made to participants?</b>
	Yes
	Participants will be offered a £10 Amazon voucher as a gesture of good will. It is not believed to be likely that remuneration will cause participants to act against their own self-interest because the risk of participating in the study is low in the first place.
<b>26.</b>	<b>Will personal data, beyond that recorded on the consent form, be used in the research?</b>
	<p>No. All personal information recorded in the consent process will be kept strictly confidential. Any final write-ups of the data gathered will not include any information that can be linked directly to the participant. Any data collected will be stored so that the participant's name is not associated with it (using a randomly generated number) e.g. Participant 21897. The questionnaire data is completely anonymised, and participants respond to it through a web link.</p> <p>All data collected is directly exported to a CSV files, stored and encrypted on my personal laptop.</p>
<b>27.</b>	<b>Will the participants be audio-taped or video-taped?</b>
	No
<b>28.</b>	<b>What arrangements have been put in place to ensure confidentiality and security of data gathered in the study? Will the data be stored in hard copy or electronically, and where will it be held?</b>

	<p>No. All personal information recorded in the consent process will be kept strictly confidential. Any final write-ups of the data gathered will not include any information that can be linked directly to the participant.</p> <p>Any intermediate transcriptions will be stored so that the participant's name is not associated with it (using a randomly generated number number). All data will be handled confidentially and anonymously. Results from the research will be presented in accordance with rules for anonymity such that the results cannot be traced to individual participants.</p> <p>The anonymous data will be encrypted (as per University of Bristol Policy) and stored by the student locally on a password-protected laptop only accessible by the student. The questionnaire does not collect any personally identifying information and is also stored on a password-protected laptop. The data is only accessible to myself and there is absolutely no other person receiving access to the data.</p> <p>The data is entirely stored in anonymous CSV files to be imported into excel spreadsheets to perform statistics. All data gathered in files are generated completely anonymously signified by a randomly generated number – for example a file could be called, Participant 3562.</p>
<p><b>29.</b></p>	<p><b>Has this proposal been seen by or submitted to another ethics committee?</b></p> <p>No</p>

<b>30.</b>	<b>Do any of the investigators have any actual or potential conflict of interest in this study?</b>
	No
<b>31.</b>	<b>Is there any other relevant information you would like to make known to the committee?</b>
	Yes – the anonymous questionnaire style to be used is called Attrakdif ( <a href="http://attrakdiff.de/index-en.html">http://attrakdiff.de/index-en.html</a> )
<b>32.</b>	<b>How will the data be made available at the end of the project?</b> You must declare your level of access, see Data Access appendix
	Open
<b>33.</b>	<b>Have you read and understood the guidelines for completing this form (see last page)?</b>
	Yes

	Appendices
	Informed Consent
	<p>Obtaining informed consent from parents does not obviate the need to obtain informed consent or assent from children participating in research. Assent means that the child shows some form of agreement to participate in the research without necessarily comprehending the nature of the research sufficiently to give full informed consent. Investigators working with infants should take special effort to explain the research to the parents and be especially sensitive to any indication of discomfort or avoidance in the infant.</p> <p>It is good practice to ask participants on the consent form to confirm their consent to keep and make use of the data they have contributed. This allows someone, who for example becomes unhappy about their participation in the research, to prevent their data being used.</p> <p>The researcher should keep signed copies of consent forms securely and separately from the research data.</p> <p>For a questionnaire study, the researchers should consider if the questionnaires can be returned anonymously, in which case a consent form may not be necessary since consent is implied by the subject choosing to participate in the study. Under these circumstances, an information sheet is still required.</p>
	Data Access
	<p>Research funders and publishers increasingly require researchers to find a way to provide access to their research data, even if that data initially includes personal information.</p> <p>The University of Bristol requires you to assign an expected access level to your research data, your selection will be checked and signed off by the Ethics Committee. If you intend to create multiple datasets with different anticipated access levels you should select the most restrictive access level you expect to use. The four access levels are:</p> <ul style="list-style-type: none"> <li>•Open – my data can be made openly available through a data repository</li> <li>•Registration required – my data should only be available to bona fide researchers, on request</li> <li>•Controlled – any access requests for my data should be referred to committee for review on a case-by-case basis</li> <li>•Closed – my data should not available for sharing</li> </ul> <p>If, during the course of your research, you believe that your nominated access level will no longer be appropriate you should inform your Faculty Ethics Officer.</p> <p>You must also ensure that you get the appropriate level of consent from participants at the start of the project to allow for onward use. If you need more information about this please see the guidance on sensitive data <a href="http://data.bris.ac.uk/research/storage-and-security/sensitive-data/">http://data.bris.ac.uk/research/storage-and-security/sensitive-data/</a> or contact <a href="mailto:data-bris@bristol.ac.uk">data-bris@bristol.ac.uk</a></p> <p>Guidance on access levels</p> <p>Open – this level can be assigned where consent has been given by participants to make their anonymised data publicly available through a repository, in addition the risk assessment of re-identification of this anonymised data has been classed as low. These data sets can be made openly available through data repositories, including the Bristol Research Data Repository.</p> <p>Registration required – this level can be assigned where consent has been given by participants to make their anonymised data available to bona fide researchers on request, within the terms of participant consent and the risk assessment of re-identification of the anonymised data is low. If the data is deposited with the University of Bristol Research Data Repository requests will be facilitated by the Research Data Service.</p> <p>Controlled – this covers cases where historical consent for sharing is very limited and/or the risk assessment of re-identification is classed as medium to high. If the data is deposited with the University of Bristol Research Data Repository the Research Data Service will forward on requests to a Data Access Committee who will work with you as the PI to decide if/what data is appropriate to be made available.</p> <p>Closed – this covers data that is not available for sharing (except by regulators) because of ethical, IPR, prior exclusive agreements or other constraints. This should only be assigned if you have got prior agreement from the funder that they are willing to allow the data to be completely closed.</p>

Before submitting this form, please refer to the checklist below.

(Do NOT include a copy of this checklist with your application)

### **Checklist**

In assessing all applications, the Faculty Committee for Ethics will ask the following questions:

1. Do the likely benefits of the research outweigh the risks (if any) to the participants?
2. Are there possible risks to participants greater than they would normally encounter in their life outside research? If so, are adequate safeguards in place to minimise any harm?
3. Are there possible risks to investigators?
4. What degree of discomfort, distress or deception, if any, is foreseen?
5. Is the study adequately supervised and is the principal supervisor responsible for the project clearly identified, adequately qualified and experienced?
6. Are appropriate procedures (e.g. information sheet) in place for informing participants about the research study?
7. Are there proper procedures for obtaining consent from the participants or, where necessary, their parents or guardians?
8. Please attach (where appropriate)
  - Recruitment adverts / messages / forms
  - Information sheet / transcript
  - Consent form
  - Debriefing sheet / transcript
  - Questionnaire
  - Any other relevant material (e.g. an unpublished questionnaire enquiring about possibly sensitive topics or collecting personal data).

### **Links to useful guidelines concerning ethics of research involving human participants**

ESRC Research Ethics Framework

[http://www.esrc.ac.uk/ESRCInfoCentre/Images/ESRC\\_Re\\_Ethics\\_Frame\\_tcm6-11291.pdf#search='esrc%20research%20ethics%20framework](http://www.esrc.ac.uk/ESRCInfoCentre/Images/ESRC_Re_Ethics_Frame_tcm6-11291.pdf#search='esrc%20research%20ethics%20framework)

National Research Ethics Service (NRES)

<http://www.nres.npsa.nhs.uk/>

Medical Research Council Guidelines on Good Research Practice

[http://www.mrc.ac.uk/pdf-good\\_research\\_practice.pdf](http://www.mrc.ac.uk/pdf-good_research_practice.pdf)